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FAB 26

NITROSAMINES

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See also back page

1 a ly occurring nitrate and nitrite in  
in relation to infant  
emoglobinaemia. [A review]

os, W. E. J. and Cosmetics Toxicology 9 (2) 219-228 (1971)

[ref. En] [Res. Lab., Food and Drug  
orator, Dept. of Nat. Health and Welfare,  
ya 3, Ontario, Canada]

rate and nitrite contents of 10 vegetables  
0 commercially prepared baby foods are  
dered in the light of reports on infant  
emoglobinaemia which results from  
ption of the nitrite ion formed by  
ersion of nitrate. The subject is reviewed  
the headings: chemistry and physiology of  
emoglobin; gastro-intestinal reduction of  
ate; nitrated in the water supply; nitrate and  
e levels in foods; toxicology of dietary  
ate; reduction of nitrates in foods; and  
e levels in relation to soil fertilization  
pinach processing. VJG

cty of nitrosamines: their possible human  
h hazards.

re, P. H. and Cosmetics Toxicology 9 (2) 207-218 (1971)  
[ref. En] [Courtauld Inst. of Biochem.,  
Middlesex Hospital Med. School, London W1, UK]

12 Guidelines for production of food additives and  
er chemical commodities with least carcinogenic  
ential: a biochemical approach. [A review]

er, G. M., Jr.; Bryan, G. T. Journal of Milk and Food Technology 34 (8) 394-409

(1971) [104 ref. En] [Div. of Clinical Oncology,  
iv. Med. School, Madison, Wisconsin 53706, USA]

An attempt is made, using a biochemical  
roach, to construct safety guidelines for  
thesis and production of food additives and  
er chemical commodities with "least  
cinogenic potential". In general, chemical  
cinogens exist as or are metabolically

ivated to reactive forms able to interact with  
logically- important macromolecules, a process  
arently directly related to carcinogenesis by  
micals. A working knowledge of the

chemistry of biologically-foreign compounds is  
re necessary to understand structure-  
ivity relationships observed in chemical  
cinogenesis, since it appears that carcinogenic  
ivity can be a consequence of the structure of  
chemically-reactive forms of a carcinogen

her than of the structure of the parent  
mpound. Consequently, the biochemistry of  
eign compounds, the metabolic activation of  
ious chemical carcinogens, and the nature of  
probable active forms of these carcinogens are

ely reviewed. Utilization of this knowledge by  
estigators of chemical carcinogenesis has  
ved helpful in the discovery of new chemical  
cinogens. By eliminating from consideration  
e chemicals with carcinogenic potential,  
re is no reason why this knowledge cannot be

successfully utilized as an aid in the  
discovery of non-carcinogenic chemicals suitable  
for use as food additives or other chemical  
commodities. AS

1 F 24

[Synthetic resin adhesives for plastics and paper  
and food legislation.] Kunsthärz-Kleber für  
Kunststoffe und Papier nach dem Lebensmittelgesetz.  
Anon.

International Review for Sugar and Confectionery  
24 (7) 315-316 (1971) [De]

Toxicity, chemical and physical properties of  
synthetic resin bases and solvents, and possible  
interaction with packaging materials, food  
contents, or colouring substances are discussed in  
relation to the food laws. Hot-melt adhesives with  
addition of Elvax are noted for their strength of  
adhesion, adhesive-film flexibility after drying,  
inertness in contact with food, capacity for  
bonding plastics, paper and Al foil, and their  
resistance to deep-freezing temp. OA

1 M 64

[Technological, analytical and toxicological  
study of preservation of bread with ethylene oxide.]

Buquet, A.; Manchon, P.; Jemmali, M.

Meunerie Francaise 278: 11-20 (1971) [2 ref. Fr]

[Inst. Scientifique & Technique de  
l'Alimentation du CNAM, 292, rue Saint-Martin,  
Paris 3e, France]

The quality of sliced bread stored for 8-13 wk in  
cellulose-coated polyethylene bags which  
contained mixture of ethylene oxide (EO) and  
CO<sub>2</sub> at atmospheric pressure was studied. A  
concn. of 15% EO did not affect the organoleptic  
quality of bread. No residual EO was detected in  
bread after treatment for 500 h. A considerable  
decrease in counts of bacteria and moulds was  
found, in comparison with untreated bread. A  
mixture of 3% EO and 97% CO<sub>2</sub> was sufficient for  
storage for 8-13 wk. % diminution of vitamins  
after 5 months storage was for B<sub>1</sub> 35, for B<sub>2</sub> 0.5,  
for PP 11, for pantothenic acid 16.5 and for B<sub>6</sub>  
22.2. Rats were fed the treated bread over a  
period of 3 yr and no toxic effects were noted. MDB

1 T 5

[Toxicology of cyclamates.] Toxikologie der  
Zyklamate.

Zbinden, G.

Bibliotheca Nutritio et Dieta 16: 38-49 (1971)  
[29 ref. De] [Inst. für Pathologische Anatomie,  
Univ., Zürich, Switzerland]

Metabolism, teratogenic activity, carcinogenic  
activity, mutagenic activity, mutations in cell  
cultures, cytogenic activity in plants, cytogenic  
activity in animal cell cultures and human cell  
cultures, cytogenic activity in animals, and  
cytogenic activity in humans were investigated. It  
was concluded on the basis of these experiments  
that the use of cyclamates by diabetics and  
adipose adults can be justifiable but excessive  
intake of cyclamate-containing drinks by  
children is inadvisable. OA



erm toxicity of isobornyl acetate in rats.  
I. F.; Agrelo, C. E.; Colley, J.;  
vn, A. B. G.; Grasso, P.  
d Cosmetics Toxicology 9 (3) 355-366 (1971)  
En, fr, de] [British Ind. Biol. Res.  
Woodmansterne Road, Carshalton, Surrey,

rnyl acetate is permitted for use in food in where it has a 'generally recognized as tuts. A short-term toxicity study carried art of the BIBRA programme for safety ion of flavouring agents, is described. yl acetate dissolved in corn oil was tered daily to rats by stomach tube in 0 (control), 15, 90 or 270 mg/kg body for 13 wk. No differences were noted in body wt. gain, food intake or ological investigations between treated and animals. The no-effect level found was 15 day, more than 100 $\times$  the calculated max. y man. VJG

erm toxicity of Yellow 2G in rats.  
I. F.; Carpanini, F. M. B.; Kiss, I. S.;  
P.  
nd Cosmetics Toxicology 9 (3) 343-353 (1971)  
En, fr, de] [British Ind. Biol. Res.  
Woodmansterne Road, Carshalton, Surrey,

ow 2G, the disodium salt of 1-(2,5-dichloro-4-phenyl)-5-hydroxy-3-methyl-4-(p-phenylazo) pyrazole is permitted for use in the UK. A short-term feeding study is carried out as part of the BIBRA safety tion programme is described. Yellow 2G was rats at dietary levels of 0 (control), 100, or 10 000 ppm for 13 wk. No adverse effects noted in haematological examinations, renal crection, serum chemistry, urinary concn. or rate of body wt. gain. 1000 ppm (or ~80 /day) is suggested as the no-adverse-effect level 2000 times the expected human VJG

erm toxicity of Orange G in rats.  
I. F.; Wright, M.; Grasse, P.;  
li, S. D.  
nd Cosmetics Toxicology 9 (3) 329-342 (1971)  
En, fr, de] [British Ind. Biol. Res.

Woodmansterne Rd., Carshalton, Surrey, UK] Orange G, the disodium salt of 1-phenylazo-2-ol-6,8-disulphonic acid, is permitted for food in the UK under the Colouring in Food Regulations. A short-term feeding in rats, carried out as part of the BIBRA evaluation programme is described. Orange G d to rats at 0 (control), 50, 500 or 5000 in the diet for 15 wk. Detailed results are ed. This test established the no-effect at 50 ppm in the diet of rats (an intake of mg/kg/day) but in view of the doubtful nce of the findings at 500 ppm the true effect level is considered to be nearer this figure. VJG

### 1 T 32

Safety of food additives and solvents.  
Anon.

WHO Chronicle 25 (9) 409-411 (1971) [En] [World Health Organization, Geneva, Switzerland]

Brominated vegetable oils, cyclamates monosodium glutamate, Hg, asbestos, and extraction solvents, including petroleum hydrocarbon fractions, halogenated hydrocarbons, and impurities in solvents are briefly discussed. JN

### 1 T 61

Brominated maize oil. I. Short-term toxicity and bromine-storage studies in rats fed brominated maize oil.

Gaunt, I. F.; Grasso, P.; Gangolli, S. D.  
Food and Cosmetics Toxicology 9 (1) 1-11 (1971)  
[15 ref. En, fr, de] [British Ind. Biol. Res.  
Assoc., Woodmansterne Road, Carshalton, Surrey, UK]

Brominated vegetable oils are used to increase the sp. gr. of the essential oil components of soft drinks. A short-term feeding study was carried out by feeding groups of 16 rats of each sex dietary levels of 0.0 (control), 0.05, 0.2 or 0.8% brominated maize oil (i) or 0.8% maize oil (ii) for 90 days. With (ii) the only finding was a mild degree of fat deposition randomly distributed in the liver lobules. There was considerable deposition of lipid bound Br at all levels of treatment and so a no-effect level for (i) in rats could not be established. At the 0.2 and 0.8% dietary levels there was histological evidence of lipid storage. VJG

### 1 T 62

Brominated maize oil. II. Storage of lipid-bound bromine in pigs fed brominated maize oil.

Gaunt, I. F.; Gangolli, S. D.; Crampton, R. F.  
Food and Cosmetics Toxicology 9 (1) 13-19  
(1971) [3 ref. En, fr, de]

Groups of 2 miniature pigs were fed brominated maize oil (i) at 100 or 400 mg/kg/day for 42 days. Lipid-bound Br was found to be present in adipose tissue, liver, spleen, adrenal glands, brain, kidneys and lymph nodes. Attempts to remove Br by feeding (i) treated animals on a diet free of added (i) for varying periods and by accelerating fatty tissue breakdown by reducing the food intake, failed to show conclusively that Br is mobilized from the tissues and metabolized. [See preceding abstr.] VJG

### 1 U 7

Other federal regulations affecting food packaging.

Sacharow, S.

Food Product Development 4 (8) 48 & 50 (1971) [En]

The Food Additives Amendment (1958) to the US Food, Drug and Cosmetic Act is of significant concern to the food packaging industry. This article is mainly concerned with that part of the Amendment that deals with direct food additives, and discusses the regulations controlling the

component parts of a food package. Qualifications required for an acceptable packaging material are outlined, and good manufacturing practice, on the basis of federal regulations, is discussed. MHEG

1 U 26

**Health laws and regulations - United Kingdom.**

World Health Organization

**International Digest of Health Legislation 21 (4)**  
883-920 (1970) [En] [Geneva, Switzerland]

A selection of UK health laws and regulations is given, including the following which relate to food hygiene: Meat (Sterilization) Regulations 1969, Serial No. 871 of 1969; Food (Control of Irradiation, Amendment) Regulations 1969, Serial No. 1039 of 1969; Artificial Sweeteners in Food Regulations 1969, Serial No. 1817 of 1969 (these supersede the 1967 regulations and no longer permit cyclamic acid, calcium cyclamate and sodium cyclamate as artificial sweeteners or as permitted ingredients in artificial sweetening tablets); Soft Drinks (Amendment) Regulations 1964, Serial No. 1818 of 1969 which amends the 1964 regulations and exclude cyclamates from the list of permitted artificial sweeteners). VJG

1 U 28

**Health laws and regulations - Ceylon.**

World Health Organization

**International Digest of Health Legislation 22 (2)**  
203-210 (1971) [En] [Geneva, Switzerland]

A selection of health laws and regulations is presented, including the following which relate to food hygiene: Food and Drugs (No. 9) (Antioxidants in Food) Regulations, 1965 (contain a list of substances which may contain antioxidants, a list of antioxidants which may be used and information on packaging and labelling of antioxidants); Food and Drugs (No. 10) Regulations, 1965 (deal with preservatives, colouring matters, emulsifiers and stabilizers). VJG

2 C 33

**Embryotoxicity of chemical contaminants of foods. [A review]**

Clegg, D. J.

**Food and Cosmetics Toxicology 9 (2)** 195-205 (1971) [59 ref. En] [Food Advisory Bureau, Food and Drug Directorate, Carlingwood Plaza, Carling Avenue, Ottawa, Ontario, Canada]

A brief review is given of some contaminants that may occur in foodstuffs: mycotoxins (aflatoxins), metals (Zn, Cd, Ca, Se, Pb, Hg, <sup>90</sup>Sr), nitrosamines, pesticides (2,4,5-T) and polychlorinated biphenyls. It indicates that in the majority of cases embryotoxicity or teratogenicity are toxic hazards unlikely to occur in practice as a result of such contamination. The possible exception is Hg and in particular methylmercury. VJG

2 H 358

[Current position with regard to technique eliminating use of SO<sub>2</sub>. Working scheme for national delegates.] A lecture]

Jaulmes, P.

**Bulletin de l'Office International du Vin 43**  
1320-1333 (1970) [Fr] [Fac. de Pharmacie, U Montpellier, France]

This is an introduction to a series of 9 reports by delegates from different countries on the topic of possible elimination of SO<sub>2</sub> in winemaking. Topics covered include: degree of toxicity of SO<sub>2</sub>; action of SO<sub>2</sub>, alone and in combination with thiamine; conditions for SO<sub>2</sub> in restricted amounts; and methods suggested for the avoidance of use of SO<sub>2</sub> or restricted concn. used (covered under 3 main headings: production of dry wines, production of soft and preservation of dry wines). JMS

2 M 160

**Flour improvers.**

Trenery, R. D.

**Food Technology in New Zealand 6 (6)** 31-33 [En]

Use of flour improvers is discussed with reference to specific compounds. The first mentioned is nitrogen trichloride (agene) in vapour form, which has long been superseded by more "acceptable" improvers. Potassium iodide, ascorbic acid, and, more recently, azodicarbonamide (Genitron AC3) are in now. Advantages and possible toxicity of these compounds are considered. BFMIRA

2 N 37

[Rancidity of fats in foods. I. Rancidity and toxicity of fats in precooked and dried Chinese style noodles.]

Ito, Y.; Isobe, K.; Sekita, H.; Osawa, M.; Takeda, M.; Tanabe, H.; Nagao, S.; Kuwamura, J. **Journal of the Food Hygienic Society of Japan [Shokuhin Eiseigaku Zasshi]** 11 (4) 268-274 (1970) [7 ref. Ja, en] [Nat. Inst. of Hygienic Sci.; Kamiyoga, Setagaya-ku, Tokyo, Japan]

The precooked and dried fatty noodles which are generally called "Instant Raamen" or "Instant Chinese style noodle" in Japan were powdered and kept at 50°C for 14 wk to make the fats rancid. Toxicity was determined by feeding the rancid fats to mice (30 ml/kg, single oral administration). Toxicity increased with the length of storage at 50°C, but had no linear relationship with the peroxide value. Fats extracted from the samples stored at 50°C for 14 wk showed no mortality, while fats extracted from samples stored for >4 wk had a positive mortality, the max. of which was 100%. The acid value, peroxide value, carbonyl value and TBA value and toxicity for precooked noodles measured at weekly intervals for 14 wk is tabulated. [See also following abst.] TM

2 N 38

[Rancidity of fats in foods. II. Fatty acid composition and column chromatography of fats in precooked and dried Chinese style noodles.]

Sekita, H.; Osawa, M.; Ito, Y.; Tanabe, H.

al of the Food Hygienic Society of Japan

uhin Eiseigaku Zasshi] 11 (4) 275-281

[4 ref. Ja, en]

rancid fats which were extracted from the  
oked and dried Chinese style noodles were  
ated into two fractions. The fatty acid  
ositions of the esterified fatty acid fraction  
he free fatty acid fraction were analysed by  
romoigraphy. In each of the fractions,  
ic acid decreased significantly in the  
les stored at 50°C for 6 or 7 wk. The  
tion time of an unknown peak on gas  
natography of the free fatty acid fraction  
red from the sample stored for 5 wk or over,  
entical with that of 8-formyloctanoic acid  
h is recognized to be an autoxidation product  
methyl linoleate. The rancid fats most  
to mice, which were extracted from the  
le stored at 50°C for 14 wk were  
onated. As the result, the most toxic part  
ound to be the mixed fraction of  
glyceride and free fatty acids. The %  
osition of <C<sub>12</sub>, C<sub>14</sub>, C<sub>16</sub>, C<sub>18</sub>, C<sub>16:1</sub>, C<sub>18:1</sub>,  
, and other free and esterified fatty acids  
rancid fats from precooked noodles  
ured at weekly intervals for 14 wk is  
lated. [For part I see preceding abstr.] TM

40  
growing use of nisin in the dairy industry.

ler, G. G.; McCann, B.

d Technology in New Zealand 6 (6) 25 & 27

1) [En]

is discussion on the advantages and  
ations of nisin, the international status of  
preservative from a legislative point of view is  
idered, as is the importance of residual  
n. BFMIRA

90  
ontribution to the toxicological evaluation of  
hexamethylenetetramine.

vig, H.; Andersen, J.; Rasmussen, E. W.

Food and Cosmetics Toxicology 9 (4) 491-499 (1971)

[ref. En, fr, de, es] [Inst. of Hygiene, Univ.,

asvei 8, Oslo, Norway]

he antimicrobial additive hexamethylenetetramine  
been studied in long-term trial by feeding  
a diet containing 0.16% of the additive from  
ning to natural death. Special attention was  
to muscular activity, causes of death,  
ival, body wt., acceptability of the food and  
ility. Test groups and control groups  
wed no differences. This study indicates that  
amethylenetetramine is a harmless substance at  
levels actually used in foods and ought to be  
sidered acceptable as a food additive. VJG

91  
sicochemical and other factors determining  
al sarcoma production by food additives.

sso, P.; Gangolli, S. D.; Golberg, L.;

son, J.

Food and Cosmetics Toxicology 9 (4) 463-478 (1971)

[ref. En, fr, de, es] [British Ind. Biol. Res.  
oc., Woodmansterne Road, Carshalton, Surrey, UK]

2 T 92

Results of feeding propylene glycol in the diet to  
dogs for 2 years.

Weil, C. S.; Woodside, M. D.; Smyth, H. F., Jr.;  
Carpenter, C. P.

Food and Cosmetics Toxicology 9 (4) 479-490 (1971)

[14 ref. En, fr, de, es] [Mellon Inst., Carnegie-  
Mellon Univ., 4400 Fifth Avenue, Pittsburg,  
Pennsylvania 15213, USA]

Groups of 5 male and 5 female beagle dogs were  
fed diets containing propylene glycol or dextrose,  
the latter as equicalorific controls for 2 yr.

Dosage levels were 5.0 and 2.0 g propylene  
glycol/kg and 6.35 and 2.54 g dextrose/kg, and in  
addition a control group received neither  
compound. It was concluded that propylene glycol  
fed the dogs at a concn. of ~8% in the diet (2  
g/kg/day) is utilized as a carbohydrate energy  
source without any adverse effects. VJG

2 T 99

Cell culture as a test system for toxicity.

Metcalfe, S. M.

Journal of Pharmacy and Pharmacology 23 (11) 817-  
823 (1971) [32 ref. En] [Dept. of Biochem., Univ.,  
Tennis Court Road, Cambridge, UK]

Appropriate cell culture systems provide a useful  
additional method of screening for toxicity, in  
spite of the obvious problems of relating in vitro  
effects of test compounds at the cellular level to  
their effects in the whole animal. It is shown  
that a wide range of chemically dissimilar  
molecules have a reversible inhibitory activity on  
growth of primary cultures of monkey kidney cells.  
The potency of these compounds correlates with  
their lipid solubility, suggesting that cell  
membranes may be their main site of action.  
Support for this is obtained by the correlation of  
inhibitory activity and the ability of the same  
compounds to stabilize the erythrocyte membrane  
against hypotonic haemolysis which is  
known to be a direct effect of interaction w.<sup>th</sup>  
the erythrocyte membrane. It is suggested that the  
ability of the food additive butylated  
hydroxytoluene to act as a potent inhibitor of  
cellular growth may account for its reported  
ability to prolong the life span of mice. AS

3 S 297

[Toxicity of meat and liver of cattle treated by  
hormone implantation: preliminary results.]

Ferrando, R.

Comptes Rendus Hebdomadaires des Seances de  
l'Academie des Sciences, Serie D Science

Naturelles 273 (14) 1224-1227 (1971) [Fr] [Ecole  
Nat. Vet., 94-Alfort, Val-de-Marne, France]

Experiments on rats fed meat and liver from cows  
given subcutaneous injections of hormones  
(diethylstilboestrol, progesterone + oestradiol or  
testosterone + oestradiol) showed the hormones to  
have a distinct toxic effect on the reproductive  
cycle of the female rats. Care in the  
utilization of such meat for human consumption is  
advocated. HBr

## 3 T 132

**New type of compound with strong sweetness.**

Tahara, A.; Nakata, T.; Ohtsuka, Y.

**Nature (London)** 233 (5322) 619-620 (1971) [6 ref. En] [Inst. of Physical and Chem. Res., Wako-shi, Saitama-ken, Japan]

The synthesis from pine tree rosin, of a stereoisomer of  $4\beta,10\alpha$ -dimethyl-1,2,3,4,5,10-hexahydrofluorene-4 $\alpha$ , 6-dicarboxylic acid, which has a remarkably sweet taste, is reported. Work is now being carried out on its large scale preparation and toxicity tests. AB

## 3 T 192

**Nature and stability of paprika carotenoids.**

Philip, T.

**Dissertation Abstracts International. Section B. The Sciences and Engineering** 31 (5) 2752: Order no. 70-22789 (1970) [En] [Univ., Amherst, Massachusetts, USA]

Occurrence, biosynthesis, function, chemistry, stability, nutritive value, toxicity, commercial production, use as food colouring and analysis of paprika carotenoids are reviewed. Their extraction, phase separation, saponification and counter current distribution are also reviewed including their column chromatography and TLC. Carotenoids were extracted from ground paprika, the dried extract saponified, capsanthin isolated, purified by TLC on silica gel G and confirmed by visible, IR, NMR and mass spectra. Physico-chemical properties of capsanthin and its derivatives are also discussed. The presence in paprika, of capsanthin as the dilaurate ester and of large amounts of unsaturated fat cannot be disregarded in correlating results of capsanthin oxidation with that of the oxidative deterioration of carotenoids in ground paprika on storage. Nature and composition of the fat in paprika was determined by gas chromatography and mass spectrometry of the methyl esters of fatty acids found. The ester component for capsanthin was found to be preferably lauric acid as the dilaurate. The oxidation products of capsanthin were also enumerated and it was found that the keto-carotenoids produced did not alter the colour of the paprika. LA

## 4 C 97

**[Hygienic and toxicological evaluation within the framework of food legislation in relation to environmental toxicology.]** Die hygienisch-toxikologische Bewertung im Rahmen des Lebensmittelgesetzes in Beziehung zur Umwelttoxikologie.

Bär, F.

**Deutsche Lebensmittel-Rundschau** 67 (11) 389-396 (1971) [24 ref. De] [Max von Pettenkofer-Inst. (Bundesgesundheitsamt), 1 Berlin 33 (Postfach), Germany]

Additives, plant protective agent residues, residues of pharmacologically active veterinary drugs, and chemical impurities in foods and their tolerance limits are generally discussed with reference to acute toxicity, carcinogenic effect, teratogenic effect, resorption, excretion, allergic effect, build-up of toxic substances through enzyme activity, biochemical and physiological

effects, effect on intestinal flora, pharmacological active plant constituents, induction of toxic substances in plant material through infection microorganisms, toxic product of bacterial metabolism, trace elements, organochlorine compounds, and production, storage, transport and processing of food fats. The difficulties in characterizing the toxic properties of the thousands of synthetic chemical compounds together with natural constituents and ubiquitous substances are emphasized, and animal experiments and their significance in health protection discussed. OA

## 4 G 185

**Abstracts of communications. [A symposium]** United Kingdom, Nutrition Society **Proceedings of the Nutrition Society** 30 (3) 79 94A (1971) [En]

Papers read at the 234th Scientific Meeting of the Nutrition Society, held at the Royal Society of Medicine, London on 21st May 1971, included Effect of degraded and undegraded alginates [stabilizers] on the colon of guinea-pigs, by J. W. & R. Marcus (p. 81A); and The stability of vita C in machine-peeled potatoes, by L. Zarnegar & A. E. Bender (p. 94A, 1 ref.). JA

## 4 G 195

**[Low calorie and calorie-free foods.]** Calorien- und kalorienfreie Lebensmittel. [A symposium] Zöllner, N. (Germany, W., Gesellschaft für Ernährung) (Editor)

**Wissenschaftliche Veröffentlichungen der Deutschen Gesellschaft für Ernährung** 20: viii + 143pp. (1971) [Numerous ref. De] [Medizinische Poliklinik, Univ., 8 Munich 15, W. Germany]

The following papers were presented at this symposium of the German Society for Nutrition, Munich, 23-24 Oct. 1969: Significance and consequences of low-calorie nutrition, by N. Zöllner (pp. 1-6); Significance of low-calorie and calorie-free foods in dietetics and in general nutrition of the population, by G. Hartmann (pp. 19, 12 ref.); Metabolic consequences of low-calorie nutrition, by H. Ditschuneit (pp. 20-34, 16 ref.); Calorie-deficient nutrition and plasma lipids, by Weizel (pp. 35-40, 2 ref.); Low-calorie nutrition and satiety by P.-U. Heuckenkamp & N. Zöllner (pp. 41-46, 14 ref.); Possibilities of development of low-calorie spreading and cooking fats, by K. Brammer (pp. 47-53, 8 ref.); Sweeteners, by N. Zöllner (pp. 54-59); Comparison of sweetening capacity of raw sugar, cyclamate, and a mixture cyclamate and saccharin, by A. Fricker & J. Gutschmidt (pp. 60-64, 3 ref.); Toxicology of sweeteners, by F. Bär (pp. 65-78, 50 ref.); Relative value of sugar-replacers and sweeteners in a diabetic diet, by H. Mehnert (pp. 79-84); Review cyclamates and other sweeteners in international legislation, by W. Schultheiss (pp. 85-92); The fate of cyclamates in the organism, by H. J. Dengler (pp. 93-100); Recent scientific and legal aspects of cyclamate, by R. G. Wiegand (pp. 101-103, En)

to logical examination of sweeteners, by D. e (pp. 104-109, 9 ref.); [Continued in wing abstr.] OA

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**\* calorie and calorie-free foods.]** Calorienarme calorienfreie Lebensmittel. [A symposium]

ner, N. (Germany, W., Gesellschaft für Ernährung) (Editor)

**Wissenschaftliche Veröffentlichungen der**  
**Deutschen Gesellschaft für Ernährung** 20:

-143pp. (1971) [Numerous ref. De] [Med. klinik, Univ., 8 Munich 15, W. Germany]

Continued from preceding abstr.] Toxicology of cyclamates, by P. H. Derse (pp. 110-118, 7 En); Question of physiological coagulation effect of cyclamates, by H. Egli (pp. 119-124, 1 1); Chromosomal effects of cyclohexylamine, by Schoeller (pp. 125-127, 1 ref.); Circulation effects of cyclohexylamine and the effect of this substance on the activity of catecholamine, by P. J. Quaardt & H. G. Classen (pp. 128-137, 8 ref.); The final report of a three-yr clinical study of amate, by N. Zöllner & M. Pieper (pp. 138-).

OA

535

**gienic aspects of potatoes whose tubers had been treated with TB (2,3,5,6-**

**achloronitrobenzene) preparation.]**

rob'eva, N. M.; Lapchenko, V. S.; Vasiliu, S. G. **prosy Pitaniya** 30 (6) 73-74 (1971) [Ru] evskii Nauchno-issled. Inst. Gigiency Pitaniya, v, USSR]

Potatoes grown from tubers treated with TB preparation (containing 6.66% 2,3,5,6-achloronitrobenzene) at the rate of 200 mg/kg were examined organoleptically, chemically and in biological tests on animals. No differences in appearance, taste, smell, contents of sugars, starch or ascorbic acid were found 1 and 9 months after harvest between treated and control potatoes. Differences in blood composition and wt., ascorbic acid content and microscopical appearance of organs were detected in rats given 6 g raw potatoes or in cats given daily 40 g dried, treated or control potatoes. It is concluded that TB may be safely used for prolonging the storage life of seed potatoes. SKK

1415

**abilization of bread by a gaseous process: description of the process and study of a product obtained experimentally.]**

quet, A.; Manchon, P. **mentation et la Vie** 59 (1) 72-78 (1971) [5 ref. [Lab. de Biol. du Conservatoire Nat. des Arts Metiers, Paris, France]

To lengthen the shelf-life of sliced bread in plastic bags, incorporation of ethylene oxide

(combined with CO<sub>2</sub> to reduce the risk of fire and to enhance gas penetration) into loaves is proposed. Techniques of treatment and packaging are described. Bread treated in this manner was found to be acceptable organoleptically, toxicologically and microbiologically. DSW

4 T 225

**[Symposium on Flavourings.]** Symposium über Aromastoffe.

**Switzerland.** Societe Suisse de Chimie Analytique et Appliquee

**Mitteilungen aus dem Gebiete der**  
**Lebensmitteluntersuchung und Hygiene** 60 (6) 417-452 (1969) [De, Fr]

Papers read at this symposium held in Zürich in Oct. 1969 included the following: Use of GLC in the quality control of aroma, by B. A. Gubler (pp. 418-434, De); Flavourings and toxicology, by C.-A. Vodz (pp. 434-448, 14 ref., Fr); Legislation on the use of flavourings, by W. Schlegel (pp. 444-450, De); GLC-mass-spectrometry in the study of natural aromas, by B. Willhalm (pp. 450-452, De). JMD

4 T 243

**FDA wants more studies on all ingested certified colours.**

Kuzio, W.

**Confectionery Production** 37 (12) 699-701 & 730 (1971) [En]

Doubt has recently been cast on the safety of FD and C Red No. 2 or Amaranth by Russian work which showed that Amaranth was a factor in preventing some pregnancies and causing still birth in rats. Toxicity testing has now been undertaken by the FDA and in consideration of this the extent of use of this colour and the possible alternatives are reviewed. BFMIRA

4 T 244

**A critical review of the safety of phenolic antioxidants in foods.** [A review]

Johnson, F. C.

**CRC Critical Reviews in Food Technology** 2 (3) 267-304 (1971) [114 ref. En] [Dept. of Food Sci., Huntingdon Res. Centre, Huntingdon, UK]

The review covers the chemistry of oxidation, autoxidation of fats and oils, chemistry of hindered phenolic antioxidants and polyhydroxy phenolic antioxidants; metabolism of synthetic hindered phenolic antioxidants, toxicity of the antioxidants, and safety and legal limits governing their use. Literature examination suggests that BHA, BHT, certain Ionoc compounds and gallate esters are safe at the present legally permitted dose levels. Evidence for NDGA (nordihydroguaiaretic acid) suggests a dangerous toxicity. Life prolonging effect of certain antioxidant, because of vitamin E sparing activity is mentioned. PG

5 C 115

[Methods for the study of toxic and teratogenic substances in foodstuffs.]

Billon, J.

*Recueil de Medecine Veterinaire de l'Ecole d'Alfort*

147 (11) 1259-1272 (1971) [12 ref. Fr, en, es]

[Lab. des Abattoirs de La Villette, Paris, France]

Because of the many new methods of preparation and preservation of foodstuffs it is necessary that new experimental programmes be devised for the study of toxic and teratogenic substances in foodstuffs. One such programme is covered and comprises (a) study of acute toxicity, (b) study of chronic toxicity, and (c) study of teratogenic action. In (b), the main difficulties are choice of test animal and the amounts of food the animal can absorb daily; the preferred animals are rats. In (c), rats are also preferred and special emphasis is placed on hereditary and embryonic factors. There are 3 stages of embryonic development: (i) blastogenesis when teratogenic action produces death and abortion, (ii) embryogenesis when it produces malformations, and (iii) foetogenesis when it produces modifications in the external genital organs and retards development. The experiments are outlined and this section includes a discussion of experimental protocol, methods, etc. as well as interpretation of results. LA

5 C 118

**Chemical pollution: polychlorinated biphenyls.**

Hammond, A. L.

*Science* 175 (4018) 155-156 (1972) [En]

The properties and use of polychlorinated biphenyls are discussed briefly, with particular attention to the environmental hazards and toxicity to man through ingestion in food. JN

5 G 256

**Food preservation and packaging in the seventies.**

[A symposium]

**United Kingdom**, Institute of Food Science & Technology, Northern Ireland Branch

*IFST Proceedings* 4 (2) 81-86 (1971) [En]

Summaries are given of the following papers read at a symposium held at Queen's Univ., Belfast, UK, on 30 Sept.-1 Oct. 1970: Cryogenics, by C. L. Clough, who described major current processes for freezing foodstuffs with liquid N<sub>2</sub>; Dehydration, by S. D. Holdsworth, who reviewed the many current techniques, particularly freeze drying; Gas packaging, by A. N. Jones, who divided the subject into biologically active and biologically inactive packaging systems, and described techniques for each systems; Aseptic packaging, by D. A. Herbert, who described the basic techniques for sterilization and canning of liquids; Irradiation, by T. A. Roberts, who discussed radiation techniques; Chemical additives, by M. Sharratt, who reviewed food additives legislation; Marketing and distribution, by G. J. P. McGinn; and Consumers' attitudes, by D. Proctor. DBC

5 S 532

[Additives, adjuvants, and residues in meat and meat products.] *Zusatzzstoffe, Hilfsstoffe und Rückstände in Fleisch und Fleischwaren.*

Murna, A.

*Wiener Tierärztliche Monatsschrift* 58 (11) 396-402 (1971) [35 ref. De, en] [Bundesanstalt für Fleischforschung, Inst. für Chemie und Physik, Bleich 4, D-865 Kulmbach, W. Germany]

The topic is reviewed under the following headings: additives and adjuvants (foreign protein and nitrates, nitrites and smoking); residues (organochlorine compounds, polyhalide for decontamination of foods); and review of the contamination situation and contamination in industry shown with 100 figures. LA

5 T 292

**A new sugar substitute.**

Mazur, R. H.; Craig, T.

*American Soft Drink Journal* 125 (909) 94-95 (1971) [En] [Fermeo Lab., Div. of G. D. Searle Co., Chicago, Illinois, USA]

Research has shown aspartylphenylalanine methyl ester to be 100 times as sweet as sucrose, through the natural configuration of the aspartic acid and phenylalanine is critical and  $\alpha$ -carboxyl must be part of the peptide bond. Other related dipeptides containing aspartic acid have also been shown to be sweet, through Asp-Phe-OMe (APM) was selected for eventual commercialization because of superior intensity of sweetness and stability of the compound. Sucrose and up to 15% saccharin can be added to APM without adverse effect on flavour characteristics. APM will cyclise the corresponding diketopiperazine or hydrolyse the dipeptide, but tests have shown no taste deterioration in a carbonated orange drink after 6 months storage at room temp. TLC and GLC for detection of methyl alcohol are also being used for tests on stability. Optimum pH for stability appears to be approx. pH 3. Toxicology tests are being carried out on rat, hamster and dog. PG

5 T 300

**Food additives.**

Kilkidis, S.

*Ellenike Kteniatrike* 14 (3) 195-208 (1971) [14 ref. Gr, en]

Food additives such as natural and synthetic colours, preservatives, antioxidants, emulsifiers, sweeteners, flavour enhancers, and flavours are reviewed. The public health aspects as well as problems of detection and measurement are emphasized. The regulations governing the use of food additives in Greece are also discussed. NM

5 U 249

**Food additives specifications.** [Conference proceedings]

Egan, H.; Hubbard, A. W.

*Chemistry and Industry* 1971 (42) 1181-1186

971) [28 ref. En] [Dept. of Trade and Ind., London, UK]

The general principles governing the compilation of specifications for food additives are discussed, and the various specifications published by different organizations are reviewed. Particular reference is made to the difficulties associated with the compilation of specifications for emulsifiers, stabilizers, and colours and to the analytical problems encountered when specifications for heavy metal content and polycyclic hydrocarbon content of additives are required. The article is concluded with a brief outline of the way in which the industry can submit data and recommendations to the bodies responsible for the drawing up of specifications. BEMIRA

#### T 325 Toxicological evaluation of some extraction solvents and certain other substances.

Food and Agriculture Organization: World Health Organization

#### AO Nutrition Meetings Report Series 48A:

1 pp. (1971) [Numerous ref. En] [Rome, Italy] In a series of monographs, biochemical and toxicological evaluations are given for: brominated vegetable oils; calcium cyclamate and sodium cyclamate (including cyclohexylamine); Cu and CuSO<sub>4</sub>; ethyl maltol; food grade mineral oil; monosodium glutamate; oleoresins of paprika; phosphoric acid, phosphates and polyphosphates; and SnCl<sub>2</sub>; activated vegetable carbon (food grade); tannin (food grade); acetone; 1,2-dichloroethane; dichloromethane; ethanol; ethanol; petroleum hydrocarbon fractions (hexane and heptane); propan-2-ol; and chloroethylene. The allocation of acceptable daily intakes is discussed briefly, and recommended amounts are given. JN

#### T 326 Acute and short-term toxicity studies on trans-2-hexenal.

Saint, J. F.; Colley, J.; Wright, M.; Creasey, M.; Passo, P.; Gangolli, S. D.  
*Journal of the International Institute for Sugar Beet Research* 9 (6) 775-786 (1971) [7 ref. En, de, fr]  
British Ind. Biol. Res. Assoc., Woodmansterne Road, Carshalton, Surrey, UK]

Trans-2-hexenal is used as a component of synthetic essences, particularly those with a fruit or berry flavour. Acute toxicity and short-term feeding studies have been carried out on this compound as part of the BIBRA safety evaluation programme. Oral LD<sub>50</sub> values for rats and mice respectively for trans-2-hexenal were 780-1130 and 1550-1750 mg/kg. Intraperitoneal LD<sub>50</sub> values were 100-200 mg/kg in both species. Rats were fed trans-2-hexenal at dietary levels of 0 (control), 260, 640, 300 or 4000 ppm for 13 wk and female rabbits were given daily oral doses of 200 mg/kg for 13 wk. The no-untoward-effect level in the rat study was 30 ppm of the diet (approx. 80 mg/kg/day). G

#### 6 T 327

#### [Food additives.]

Logten, M. J. van

#### *Officieel Orgaan van de Koninklijke Nederlandse Zuivelbond* 64 (4) 91-94; (5) 120-122 (1972) [Nl]

In this survey-type article, semi-chronic and chronic toxicity tests of foods, using laboratory animals, are discussed. Aspects of specific food toxicants examined include WHO practical residue levels for DDT in milk and milk products, relationship between DDT content of milk and frequency of application of DDT-containing preparations in cowsheds etc., carcinogenicity of aflatoxin B<sub>1</sub>, aflatoxin M in milk, trends in antibiotics residue contents of liquid milk in the Utrecht (The Netherlands) food inspection region, and methylmercury in fish, including Hg content in various freshwater species in The Netherlands in 1970. NdeV

#### 6 T 328

#### Carcinogenic and teratogenic aspects of saccharin.

Lessel, B

#### *SOS/70 Proceedings, 3rd International Congress of Food Science and Technology* 1970: 764-770 (1971) [18 ref. En] [Res. Dept., Boots Pure Drug Co. Ltd., Nottingham, UK]

The carcinogenic potential of saccharin was studied in Boots Wistar rats by maintaining groups of 20 males and 20 females on dietary concn. of 0, 0.005, 0.05, 0.5 and 5% for 2 yr. A positive control group received subcutaneous injections of trypan blue, 10 mg every 2 wk for 1 yr. At the 5% level there was higher mortality and retarded growth despite greater food consumption, whereas levels of 0.5% or less were without effect. Tumour incidence was unaltered at all levels. Trypan blue induced liver reticulum cell sarcomata. The influence of saccharin sodium on prenatal development was investigated in Californian rabbits given 600 mg/kg day from day 1 to 29 of pregnancy. The mothers had depressed body-wt. gain in the 1st week and gastric lesions. There were no adverse effects on litter size, foetal mortality or foetal wt., and no induced foetal abnormalities. When male and female rats were fed on 1% of saccharin in the diet for 10 pre mating and 14 post mating days, fertility and litter size at birth were unaffected.

AS

#### 6 T 367

#### [Feeding trial with alkannin on mice.]

Futterungsversuch mit Alkannin an Mäusen.

Majláthova, L.

#### *Nahrung* 15 (5) 505-508 (1971) [5 ref. De, en, ru] [Inst. für Hygiene, Med. Fak. der Komensky-Univ., Martin, ČSSR]

Alkannin was isolated from *Radix alkannae* *tinctoria* L. Tausch with petroleum ether according to the method of Hatos [Gyogyszerez (1951) 6: 138]. It was used in a 20-wk feeding trial with mice (1% alkannin added to the diet). Alkannin caused no changes in the way of life of white mice and exerted

no influence on body wt. Modifications in the blood picture and Heinz bodies did not occur, no morphological alterations of vital organs were observed. The dye was excreted in the urine and did not accumulate in the abdominal fat. IN

6 C 395

#### Food additives, toxicology and the EEC.

Elias, P. S.

*Chemistry and Industry* 1972 (4) 139-144 (1972) [11 ref. En] [Dept. of Health & Social Security, Alexander Fleming House, London SE1, UK]

The toxicological requirements of the USA, the UK, the FAO/WHO Expert Committee on Food Additives, the Sub-committee on the Health Control of Food Stuffs of the Council of Europe, and the food additive legislation of the EEC are reviewed. No specific standards are given. The attitudes and approaches of each of the legislative organizations are discussed. IN

7 C 172

#### Toxicity of N-nitroso compounds.

Shank, R. C.

*Abstracts of Papers. American Chemical Society* 163: AGFD20 (1972) [En] [Dept. of Nutr. and Food Sci., Massachusetts Inst. of Tech., Cambridge, 02139, USA]

Toxicity of N-nitroso compounds is reviewed with emphasis on problems regarding public health. Their biological actions can be grouped into 2 classes based on different chemical properties between nitrosamines and nitrosamides. The former are chemically stable under physiological conditions. Dialkylnitrosamines characteristically require metabolic conversion to biologically active intermediates and produce haemorrhagic centrilobular necrosis in liver. Activity is greatest in tissues with highest activity of microsomal mixed-function oxidase system. In contrast, nitrosamides are relatively unstable, especially near neutral pH. These compounds rapidly decompose to intermediates which attack cells at or near the site of administration; their biological activity is much less dependent upon metabolic conversions. Many N-nitroso compounds can be characterized by their high potency as carcinogens for a wide range of tissues and animal species. Since 1960 several reports have indicated the probable presence of nitrosamines in animal and human foodstuffs. Results of controlled experiments indicate that nitrosamines and probably nitrosamides may form in foods treated with the common food additives sodium nitrate and nitrite. Indeed, such nitrosation takes place in man's stomach where gastric juice (pH 1-2) provides satisfactory conditions for the reactions to take place. These observations suggest that N-nitroso compounds could be environmental carcinogens for man. AS

7 H 1022

#### Recent advances in oenology. [A review]

Amerine, M. A.; Ough, C. S.

*CRC Critical Reviews in Food Technology* 2 (4) 407-515 (1971) [848 ref. En] [Dept. of Viticulture & Enology, Agric. Expt. Sta., Coll. of Agric., Univ., Davis, California, USA]

This is a detailed and comprehensive review of relevant literature published in 1969 and 1970, compiled in 6 general parts: grapes and fermentation; wine processing, production and composition of special wines and brandies; chemical constituents of wine; analytical procedures in oenology; and sensory, toxicological and legal aspects. OA

7 T 378

#### [Hygienic evaluation of cyclamates.] Beitrag zur hygienischen Beurteilung von Cyclamat.

Wolf, A.; Hrvnak, D.; Malkus, Z.

*Nahrung* 15 (4) 363-366 (1971) [22 ref. De, en, fr] [Lehrstuhl für Ernährung und Lebensmittelhygiene, Karls-Univ., Prague, Czechoslovakia]

Animal studies showed that cyclamate cannot be regarded as completely harmless from the health viewpoint; that commercial cyclamate preparations are not completely stable; and that sodium cyclamate, cyclohexylaminosulphonic acid and cyclohexylamine have distinct cytotoxic effects at concn. of 1.0, 0.5 and 0.02% respectively. IN

7 T 397

#### Biological properties of carrageenan. [A review]

Rosa, M. di

*Journal of Pharmacy and Pharmacology* 24 (2) 102 (1972) [104 ref. En] [Dept. of Expt. Pathology, St. Bartholomew's Hospital Med. Co, London EC1, UK]

The biological properties of carrageenan are reviewed including: occurrence; structure activity relations; absorption and fate; toxicity; inflammatory activity; effects on the kinin system; effects on coagulation systems; effects on complement system; anti-inflammatory and immunosuppressive effects; immunogenic properties. RM

7 T 407

#### Effects of cyclohexylamine on the fertility of male rats.

Green, S.; Palmer, K. A.; Legator, M. S.

*Food and Cosmetics Toxicology* 10 (1) 29-34 (1972) [8 ref. En, fr, de] [Div. of Toxicology, FDA, Dept. of Health Education and Welfare, Washington, DC 20204, USA]

369  
terogenicity of peanut oil in the rabbit.

*Food and Cosmetic Reviews* 30 (3) 70-72 (1972) [8 ref. En] Experiments in rabbits comparing the terogenicity of peanut oil with corn oil and an artificial mixture of fatty acids fed to rabbits, suggest that the toxic element in peanut oil which is responsible for enhancing experimental atherosclerosis may be its concn. of long chain saturated triglyceride fatty acids, arachidic and behenic acids. AS

416  
Methods for assessing permissible levels of intentional and unintentional food additives and the sequences for human beings when these levels exceeded.]

van der Veen, M. J. van  
*Landbouwkundig Tijdschrift* 84 (4) 122-129 (1972) [22 ref. NL, en] [Rijks-Inst. voor de Volksgezondheid (RIV), Bilthoven, The Netherlands]

Acute, semi-chronic and chronic toxicity testing of intentional and unintentional food additives is discussed. The concepts of no-effect level and acceptable daily intake (ADI) are explained. The various toxicological aspects of food additives are illustrated with reference to DDT, aflatoxins and antibiotics in milk, and Hg in fish. AS

419  
Long-term feeding study on Chocolate Brown FB in rats.

Brantum, I. F.; Brantom, P. C.; Grasso, P.; Creasey, G.; Gangolli, S. D.  
*Food and Cosmetics Toxicology* 10 (1) 3-15 (1972) [9 ref. En, fr, de] [British Ind. Biol. Res. Soc., Woodmansterne Rd, Carshalton, Surrey, UK]

Chocolate Brown FB is one of the colourings at present included in the UK permitted list. Results of a 2 yr feeding trial carried out as part of the BIBRA safety evaluation programme are reported. Groups of 30 male and 30 female weanling rats were fed on diets containing 0 (control), 1000, 5000, 10 000, or 30 000 ppm Chocolate Brown FB. No effects attributable to treatment were found in respect of body-wt. gain, haematology, serum chemistry, organ wt., mortality or incidence of tumours. No carcinogenic potential was detected in Chocolate Brown FB and the no-untoward-effect level was 1000 ppm (approx. 50 mg/kg/day). G

420  
Long-term feeding study on Black PN in rats.  
Brantum, I. F.; Carpanini, F. M. B.; Grasso, P.; Kiss, S.; Gangolli, S. D.

*Food and Cosmetics Toxicology* 10 (1) 17-27 (1972) [17 ref. En, fr, de] [British Ind. Biol. Res. Soc., Woodmansterne Rd, Carshalton, Surrey, UK]

Use of Black PN, a food colouring consisting principally of the tetrasodium salt of 8-acetamido-2-(7-sulpho-4-p-sulphophenylazo-1-naphthylazo)-1-naphthol-3,5-disulphonic acid, is permitted in the UK. Groups of 24 male and 24 female weanling rats were fed diets containing 0 (control), 1000, 5000 or 10 000 ppm Black PN for 2 yr, as part of the BIBRA safety evaluation programme. No effects attributable to treatment were found in respect of food intake, body-wt. gain, mortality, haematology, serum chemistry, organ wt., renal concn. tests or incidence of pathological finding including tumours. No carcinogenic potential was detected and the no-untoward-effect level was 10 000 ppm (approx. 500 mg/kg/day). VJG

8 T 421

[Use of nitrites as food additives.]

Norway, Institutt for Næringsmiddelforskning  
Tjaberg, T. B.; Hildrum, K. I.

*Tidsskrift for Hermetikindustri* 58 (2) 41-45 & 47-50 (1972) [No]

Papers read at a conference organized by the Norwegian Institute of Food Research, Nov. 1971, on the use of nitrites as food additives included 2 reviews: Colour-enhancing and preservative effect of nitrites, by T. B. Tjaberg (pp. 41-45, 29 ref.) and Toxic aspects of nitrite application, by K. I. Hildrum (pp. 47-50, 27 ref.). HBr

8 T 452

[General reflections on the problem of food additives and on the tests necessitated by regulations concerning these additives.]

Manchon, P.; Buquet, A.

*Annales de la Nutrition et de l'Alimentation* 25 (4) 277-296 (1971) [135 ref. Fr, en] [Inst. Sci. et Tech. de l'Alimentation, 292 Rue Saint-Martin, Paris-11<sup>e</sup>, France]

The need for food additives, associated health hazards and tests which are necessary before authorizing their use are reviewed under the following headings: health hazards - direct effects on digestion, toxicity, effect on nutrients and nutrient balance; quantitative determination in foods; toxicity by cumulative effect, indirect mechanisms (e.g. destruction of essential nutrients); physiological, pharmacodynamic and biochemical problems; required tests - study of the additive, acute, subacute and chronic toxicity tests including histological, hepatotoxic, teratogenic, reproduction, cellular physiology study and tests in pathological conditions, particular states of nutrition and in conjunction with medical prescriptions. RM

8 U 570

[Development of European legislation on flavouring substances, and research.]

Vodoz, C.-A.

*Industries Alimentaires et Agricoles* 89 (2) 97-104 (1972) [12 ref. Fr. de, en]

After a definition of "natural", "simulated natural" and "artificial" flavouring substances, the composition and utilization of commercially available commercial flavours are outlined. An account of the toxicological aspects of natural foods and of the toxicological analysis of flavour compounds leads to a discussion of the 3 legal principles introduced some years ago in some countries, viz. the principle of abuse, the principle of prohibition and the "mixed" system. These can have a definite effect on industrial flavour research orientating more towards either new, artificial compounds or towards synthetic reconstruction of natural flavours. Some details are given of flavour research laboratories in W. Europe. AS

9 C 217

[Symposium on food additives and contaminants.]

[A symposium]

Garry, R. G. (United Kingdom, Nutrition Society) (Chairman)

*Proceedings of the Nutrition Society* 31 (1) 1-44 (1972) [Numerous ref. En]

This symposium, which formed the 237th Scientific Meeting of the Nutrition Society, was held at Strathclyde Univ., Glasgow on 2nd Oct. 1971 and consisted of the following review papers: The use of antibiotics as feed additives for farm animals, by I. A. M. Lucas (pp. 1-8, 74 ref.); Control of food additives and contaminants, by H. M. Goodall (pp. 9-14, 24 ref.); Food additive testing, by J. M. Philp (pp. 15-21, 20 ref.); Pesticides and toxic chemicals, by H. Egan (pp. 23-32, 41 ref.); Bacterial contamination of food, by A. B. Christie (pp. 33-37, 9 ref.); and The nutritional balance of advantage and disadvantage [of food additives], by M. Pyke (pp. 39-44, 18 ref.). JA

9 C 218

[Effect on man of antibiotic residues in animal tissues.]

Mazurczak, J.

*Medycyna Weterynaryjna* 26 (5) 296-298 (1970) [Pl] [ul. Grochowska 272, Warsaw, Poland]

This review-type article deals with allergy and resistance to antibiotics in man caused by consumption of antibiotic residues in foods of animal origin. SKK

9 C 219

[Antibiotic content of foods of animal origin.]

Mazurczak, J.

*Medycyna Weterynaryjna* 26 (5) 292-295 (1970) [Pl] [ul. Grochowska 272, Warsaw, Poland]

This review-type article deals with antibiotic residues in milk, cattle, pig and poultry tissues and eggs resulting from veterinary treatment and with

residues resulting from inclusion of antibiotics as feed additives. SKK

9 G 457

[Chemical aspects of updating diet qualit.]

Sebrell, W. H., Jr.

*Journal of Agricultural and Food Chemistry* 20 518-522 (1972) [En] [Inst. of Human Nutr., C of Physicians & Surgeons, Columbia Univ., New York 10032, USA]

The use of chemicals to improve the nutritional quality of foods began with the additions of iodine to salt to prevent goiter and vitamin D to milk to prevent rickets. Several hundred chemicals have been approved for use to improve the colour, flavor, texture, keeping qualities, and nutritional value of food. This makes our food supply one of the most varied, palatable, convenient, and nutritionally adequate in the world. The outstanding example of the successful and economical use of chemicals to improve the nutritive value of foods is demonstrated by the enrichment of bread, flour, and other cereals. We must use chemical additives in increasing amounts and variety in order to make our food supply nutritionally adequate at the lowest cost in the face of the rapid population increase. Chemicals must be used under proper controls for safety and effectiveness. It can be anticipated that food mixtures, imitation foods, and meal substitutes in which chemicals are widely used are going to become increasingly useful and important in our food supply. AS

9 T 482

[Evaluation of food additives. Joint FAO/WHO Expert Committee on Food Additives. Fourteenth report.]

Food and Agriculture Organization, Joint FAO/WHO Expert Committee

*FAO Nutrition Meetings Report Series* No. 48 36pp. (1970) [En] [Geneva, Switzerland]

Principles governing the establishment of specifications for food additives and their toxicological evaluation were discussed and resolutions recorded. Items covered include toxic metabolites formed by the intestinal microflora (e.g. cyclohexylamine from cyclamate), difficulty of extrapolation of animal data to man, biological reactivity of chemically inert substances, and toxic products formed by interaction between an additive and a food constituent. Special consideration was given to solvents used in food processing, including measurement of residues in food; carcinogenic impurities (polynuclear hydrocarbons); and interaction between chlorinated solvents and proteins. Other additives or contaminants assessed in the light of toxicological data include brominated vegetable oils (should not be used pending evidence of safety); cyclamates and

phexylamine; monosodium glutamate  
acceptable daily intake (ADI) 0-120 mg/kg, except  
infants); phosphates, ADI 0-30 mg/kg; filter  
clarification aids (asbestos, activated vegetable  
carbon, tannins); Cu and Sn (no serious chronic or  
acute effects); Hg (serious local contamination of  
due to environmental pollution); miscellaneous  
additives. [For toxicological evaluations, detailed  
specifications for solvents and other additives and a  
review of technological efficacy see following abstr.]  
Contamination by Hg is considered to be a serious  
urgent problem. Further work is also needed to  
establish ADI values for wide range of possible  
additives and contaminants. ELC

483  
**Ecological evaluation of some extraction  
solvents and certain other substances. Joint  
FAO/WHO Expert Committee on Food Additives.  
Fourteenth report.**

Food and Agriculture Organization, Joint  
FAO/WHO Expert Committee

**FAO Nutrition Meetings Report Series No. 48**  
pp. (1970) [En] [Geneva, Switzerland]

This publication is intended to be read in  
junction with the main Report on Evaluation of  
Food Additives [see preceding abstr.]. Acceptable  
daily intakes (ADI) for man in mg/kg body wt. are  
indicated for the substances considered as  
conditional (adequate toxicological investigation  
information on metabolic fate), conditional for  
specific purposes, temporary (available data not  
adequate and subject to additional  
information by a specified date), and no ADI  
information grossly inadequate). Very full and  
detailed monographs on toxicological evaluations,  
which include biochemical data, acute toxicity,  
short-term and long-term (when available) studies,  
observations in named experimental animals and in  
man, a literature survey, requirements for further  
work and final evaluation are included for the  
following: brominated vegetable oils, cyclamates  
and cyclohexylamine (no ADI), copper and cupric  
sulphate, ethyl maltol, mineral oil, monosodium  
glutamate, paprika oleoresins, phosphoric acid and  
salts, salts, tin and stannous chloride, activated  
vegetable carbon, tannin, acetone, dichloroethane,  
dichloromethane, ethanol, methanol, hexane,  
heptane, propan-2-ol, trichlorethylene. In some  
cases no ADI is proposed when use of a substance  
is limited by good manufacturing practice or is self-  
limiting for organoleptic reasons. ELC

484  
**Specifications for the identity and purity of some  
food extraction solvents and certain other substances.  
Joint FAO/WHO Expert Committee on Food  
Additives. Fourteenth report.**

Food and Agriculture Organization, Joint  
FAO/WHO Expert Committee

**FAO Nutrition Meetings Report Series No. 48B**  
124pp. (1971) [En] [Rome, Italy]

This publication is intended to be read in

conjunction with the main Report on Evaluation of  
Food Additives [see preceding abstr.]. Detailed  
specifications are given of food industry uses,  
identification tests, purity tests and specific  
standards, method of assay, and in some cases  
microbiological requirements for the additives  
cupric sulphate, curcumin, cyclamates and  
cyclohexylsulphamic acid, ethyl maltol, edible  
gelatin, food grade mineral oil, monosodium L-  
glutamate, oleoresin paprika, sodium caseinate,  
stannous chloride, turmeric and brominated  
vegetable oils (identification tests only); for the  
filtration agents activated vegetable carbon and  
tannins (tentative and restricted to hydrolysable  
tannins yielding gallotannins); and for the solvents  
acetone, 1,2-dichloroethane, dichloromethane,  
ethanol, methanol, hexane (tentative), heptane  
(tentative), propan-2-ol, and 1,1,2-trichlorethylene.  
Annexes prescribe further details of analytical  
procedures and manipulations, with descriptions  
and diagrams of apparatus to be used for the  
following determinations in the analysis of solvents:  
residue on evaporation; acidity and alkalinity;  
aldehydes and ketones; aromatic hydrocarbons; UV  
absorbance; and sulphur content. ELC

91-485

**A review of the technological efficacy of some  
antimicrobial agents. Joint FAO/WHO Expert  
Committee on Food Additives. Fourteenth report.**  
Food and Agriculture Organization, Joint  
FAO/WHO Expert Committee

**FAO Nutrition Meetings Report Series No. 48C**  
61pp. (1971) [En] [Rome, Italy]

Data on technological efficacy of antimicrobial  
agents are reviewed independently of possible  
recommendations for use, tolerances or legal  
aspects. General considerations include the  
necessity for chemical preservation of a particular  
food, efficacy in practice, stability in food, absence  
of nutritional or organoleptic damage and use of a  
min. concn. combined with limitation of initial  
contamination. Evaluation of efficacy under  
practical conditions is discussed with respect to type  
and number of spoilage organisms, pH, water  
activity, storage conditions, concn. required and  
possible effects of lipids, sugars and proteins.  
Detailed information is given for widely used  
additives on purity, physical and chemical  
properties, min. inhibitory concn., effective pH  
range, taxonomic groups and individual spp. of  
organisms against which efficacious, methods of use  
and concn. required in individual foods and  
literature references. Additives covered are benzoic  
acid, benzoates, nitrates and nitrites, esters of p-  
hydroxybenzoic acid, propionic acid and  
propionates, sodium diacetate, sorbic acid and  
sorbates,  $SO_2$ , and diethylpyrocarbonate. Detailed  
specifications and assay methods are given in  
annexes for potassium benzoate, propionic acid,  
calcium sorbate, potassium sorbate, potassium  
metabisulphite and diethylpyrocarbonate. [See also  
preceding abstr.] ELC

9 T 490

**Biochemical and pathological changes in rats fed low dietary levels of brominated cottonseed oil.**

Munro, I. C., Hand, B., Middleton, E. J.;

Heggteit, H. A.; Grice, H. C.

**Food and Cosmetics Toxicology** 9 (5) 631-637

(1971) [9 ref. En, fr, de] [Res. Lab., Food and Drug Directorate, Dept. of Nat. Health and Welfare, Tunney's Pasture, Ottawa, Canada]

Groups of 8 male rats were fed semi-purified diets containing 0.0, 0.02, 0.1 or 0.5% brominated cottonseed oil for 120 days. Total food consumption and body-wt. gains were similar for all groups. Animals fed 0.5% but not those fed 0.1 or 0.02% brominated oil had increased relative heart and liver wt., which were a reflection of fat accumulation in these organs. Myocarditis was present in about 85% of animals fed 0.5% brominated oil and microfollicular hyperplasia of the thyroid was seen occasionally in animals of this group. Decreased hepatic activity of glucose 6-phosphate dehydrogenase was noted in animals fed 0.1 or 0.5% brominated oil but no changes were detected in isocitric dehydrogenase activity or in hepatic drug-metabolizing capacity in animals treated with brominated oil. AS

9 T 510

**Short-term toxicity of Orange RN in rats.**

Gaunt, I. F.; Brantom, P. G.; Kiss, I. S.; Grasso, P.; Gangolli, S. D.

**Food and Cosmetics Toxicology** 9 (5) 619-630

(1971) [23 ref. En, fr, de] [British Ind. Biol. Res. Assoc., Woodmansterne Rd, Carshalton, Surrey, UK]

Orange RN, the sodium salt of 1-phenylazo-2-naphthol-6-sulphonic acid, is a water-soluble food colouring, permitted for use in the UK under the Colouring Matter in Food Regulations 1966, but not permitted in the USA. Orange RN was fed to rats at dietary levels of 0 (control), 60, 600, 1200 or 6000 ppm for 15 wk. This treatment had no effect on growth or food intake or on serum and urine analyses except that the urine was orange at all but the lowest level. Increased water intake and decreased renal concentrating ability occurred at the highest dosage level. The no-untoward-effect level found was 60 ppm, approx. equivalent to an intake of 3 mg/kg/day. VJG

9 T 514

**[Sodium-carboxymethyl cellulose and its use in food processing.] [A review]**

Ishizuka, T.

**Journal of Food Science and Technology [Nihon****Shokuhin Kogyo Gakkaishi]** 17 (5) 211-220

(1970) [130 ref. Ja] [Central Res. Lab., Daiichi Kogyo Seiyaku Co. Ltd., Shimogyo-ku, Kyoto, Japan]

Physicochemical properties of sodium carboxymethyl cellulose, its interaction with food components, and applications, are reviewed. Major topics considered are: viscosity, particularly its

dependence in concentrated solution on the degree of polymerization, rheological characteristics; stability of 1 and 2% solutions as a function of temp (0-80°C) and pH (3-13); effect of enzymes; and toxicity tests. Data is cited for interaction with: cations of varying charge, water-soluble gums, casein, soybean constituents, whey proteins, and sucrose. Numerous examples of its application are given: milk-based soft drinks; ice-cream mix; processed wheat flour products; as a preservative glaze for frozen fish, in the production of solid or powdered sauces, flavourings, and drinks; and as thickener or thixotropic agent. KH

9 T 524

**Long-term toxicity of propylene glycol in rats.**

Gaunt, I. F.; Carpanini, F. M. B.; Grasso, P.;

Landsdown, A. B. G.

**Food and Cosmetics Toxicology** 10 (2) 151-162

(1972) [22 ref. En, fr, de] [British Ind. Biol. Res. Assoc., Woodmansterne Road, Carshalton, Surrey, UK]

Propylene glycol, one of 9 solvents permitted for use in food in the UK, was fed for 2 yr to male and female weanling rats at levels 0 (control), 6250, 1500, 25 000 or 50 000 ppm. Treatments were found to have no effect on body wt. gain, haematology, mortality, food consumption etc. No carcinogenic potential was detected with dietary levels of propylene glycol  $\leq$  50 000 ppm, which was also established as the no-untoward-effect level in this study. This level is equivalent to an intake of approx. 2.5 g/kg/day. VJG

9 U 620

**Exemptions from the requirement of a tolerance. United States of America, Environment Protection Agency****Federal Register** 37 (96, May 17) 9774 (1972) [En]

The following compounds are exempt from the requirement of a tolerance under the US Federal Food, Drug and Cosmetic Act when used at a max level of 0.2% (in the final solution) as an emulsifier in pesticide concn. applied with liquid fertilizer solutions before the crop emerges from the soil or not later than 4 wk after planting:  $\alpha$ -alkyl(C<sub>12</sub>-C<sub>18</sub>) omega-hydroxypoly(oxyethylene)sulphosuccinate, isopropyl-amine and salts of N-hydroxyethyl isopropylamine, the poly(oxyethylene) content averages 3-12 moles;  $\alpha$ -(p-nonylphenyl)-omega-hydroxypoly(oxyethylene)sulphosuccinate, isopropylamine and salts of N-hydroxyethyl

isopropylamine, the poly(oxyethylene) content averages 4 moles; and sulphosuccinic acid, ester with N-(2-hydroxypropyl)oleamide, ammonia and salts of isopropylamine. CAS

U 629

**Talc approved as release agent for hard and soft caramels.**] Talkum als Trennmittel für Hart- und Leichkaramellen zugelassen.  
ebig, A. W.

**Lebensm. u. Gesundheit 16 (5) 186 (1972) [De]**

Under the 1971 W. German food laws, talc may be used concn. of  $\leq 3$  g/kg as release agent for hard and soft caramels. A request by the W. German sweet Industry Association for permission to use talc for other products (e.g. dragees and marzipan products) was not granted. The relation between the W. German and EEC regulations on this subject is discussed. IN

U 635

**Problems on food additives in the Codex Alimentarius.**] [A review]

hii, A.

**Journal of Food Science and Technology [Nihon Nokuhin Kogyo Gakkai-shi]** 17 (6) 263-273 (1970) [Ja] [Resources Div., Planning Bureau, Sci. Tech. Agency, Chiyoda-ku, Tokyo, Japan]  
The FAO/WHO Codex Committee on Food Additives (CCFA) has evaluated the safety of additives by comparing the calculated intake with the acceptable daily intake (ADI) as determined by the FAO/WHO Expert Committee on Food Additives (ECFA). The role of each committee is reviewed. The CCFA classified additives as: not hazardous in excess, with intake not exceeding the ADI; hazardous in excess, with intake liable to exceed the ADI; and others. Many substances were approved only provisionally because the ECFA lacked reliable experimental data. Criteria adopted for the technical evaluation of additives are discussed, e.g. preservation of nutritional value and enhancement of stability. There was conflict between the necessity for technical evaluation and the practices established in different countries. Data on all additives approved to date are tabulated. Problems discussed at the 6th Conference of the CCFA (April, 1970) included: identification of nitrosamines due to nitrates or nitrites, sodium glutamate in meats, tartaric acid and tartrates, modified starch, niacin in canned fruit and vegetables, SO<sub>2</sub> in raisins, NaH<sub>2</sub>PO<sub>4</sub>/Na<sub>2</sub>HPO<sub>4</sub> in cheeses, and flavour enhancers based on cytidylic and uridylic acids. The terminology for description of additives, and methods of analysis were also considered. KH

A 422

**Chromatographic and biological aspects of polychlorinated biphenyls.**] [A review]

hbein, L.

**Journal of Chromatography** 68 (2) 345-426 (1972) [113 ref. En] [Nat. Inst. of Environmental Health Sci., Dept. of Health, Education & Welfare, Research Triangle Park, N. Carolina 27709, USA]

A review is presented of the chromatographic column, TLC, GLC and combined GLC and MS

and biological aspects of the polychlorinated biphenyls with particular emphasis on their use, ecological distribution and toxicity. Details are given of various techniques for their separation from chlorinated pesticides and subsequent analysis. Reference is made to their isolation from fish, including fresh and smoked chub, crabs, oysters, shrimps, rice bran oil, cheese and cocoa beans. AB

10 C 253

**[Nutrition 71. Pollution and its effect on foods.]**

[Conference proceedings]

Debray, J.-R. (Chairman)

**Cahiers de Nutrition et de Dietetique** 6 (3) 23-82 (1971) [35 ref. Fr]

The following papers, presented on 21 April 1971, are included: Pollution - a new myth, by J. Tremolieres (pp. 25-28, 1 ref.); Pathogenic and toxin-producing-microorganisms in foods, by R. Buttiaux (pp. 29-30); Pesticides in humans, by E. Fournier (pp. 31-35, 2 ref.); Toxins of fungal origin, by P. Lafont (p. 36); Residues in animal nutrition, by R. Ferrando (pp. 37-47, 32 ref.); Some recent work in the area of food toxicology, by R. Truhaut (p. 48); Substances formed during certain heat and radiation treatments, by J. Causeret (pp. 49-51); Plastics in contact with foods, by R. Lefaux (pp. 52-54); The destruction of plastics food packaging materials, by G. Le Moan (pp. 55-58); Dangerous foods and nutritional imbalance, by J. Tremolieres (pp. 59-62); The concern of consumers, by F. Custot (pp. 62-65); Precautions taken by producers, by J. Colas (pp. 66-67); Research on additives, pesticides and pollutants of foods, by R. Derache (pp. 68-69); The contribution of research towards protection from pollution, by P. Manchon & R. Lowy (pp. 70-71); and Protection brought about by regulations against the pollution of foods, by R. Souverain (pp. 75-78). A short discussion of the subject is included. SAC

10 F 470

**[Toxicity of extracts of vinylidene chloride copolymers.]**

Sporn, A.; Cirstea, A.; Dinu, I.; Ghizelea, L. G.; Stoenescu, L.

**Igiena** 19 (10) 587-594 (1970) [11 ref. Ro, fr, de, en, ru] [Inst. de Igiena Sanatate Publica, Bucharest, Roumania]

Tests on mice and rats showed that extracts of vinylidene chloride copolymers, obtained by 3 months' contact between the plastics material and water, had no effect when administered at high concn. under experimental conditions, although long-term administration of a high concn. of the aqueous extract in drinking water had a slight effect on some enzyme activities. An 8% concn. of 3 month oil extract administered in the food had no effect. [From En summ.] HBR

10 F 471

[Toxicity of extracts of plasticized and non-plasticized polyvinyl chloride stabilized with ethyl eretonate.]

Sporn, A.; Crstea, A.; Dinu, I.; Boghianu, L.; Ghizela, G.; Ozeranschi, L.; Botescu, E. *Igiena* 20 (6) 323-330 (1971) [9 ref. Ro, fr, de, en, ru] [Inst. de Igiena si Sanatate Publica, Bucharest, Roumania]

Acute and subacute toxicity tests on mice and rats administered extracts of PVC, stabilized with ethyl eretonate or an organostatic stabilizer, in the presence or absence of a plasticizer (20% dioctylphthalate), indicated that ethyl eretonate has a low level of toxicity. [From En summ.] HBr

10 N 475

[Studies on the causative substances of rice oil poisoning.]

Sekita, H.; Uchiyama, S.; Suzuki, T.; Ito, Y.; Takeda, M.; Kondo, T.; Tanabe, H.; Shimura, H.; Terashima, T.; Kurata, H.; Natori, S. *Bulletin of the National Institute of Hygienic Sciences [Eisei Shikenjo Hokoku]* 87: 20-23 (1969) [1 ref. Ja, en]

Analyses by X-ray fluorescence spectrometry and other methods revealed that element levels in normal and toxic oils (the latter having caused an outbreak of food poisoning in Kyusyu in 1968) were almost identical except for chlorine. Gas chromatographic studies using an electron capture detector indicated that the toxic oil was contaminated with compounds of high electron affinity. Further studies revealed these compounds to be compounds of Kanechlor, a chlorinated diphenyl. This compound has been found in the plant manufacturing the oil. AS

10 P 1446

[An illustration of the adulteration of milk fat and solids-not-fat of raw milk.]

Iwaida, M.; Ebine, R.; Tanimura, A.

*Bulletin of the National Institute of Hygienic Sciences [Eisei Shikenjo Hokoku]* 89: 119-121 (1971) [7 ref. Ja, en]

A white powder and white viscous milky liquid suspected of being mixed with water and used to adulterate raw milk as substitutes for milk SNF and fat were found to be 94.96% lactose monohydrate and an oil-in-water type of emulsified fat used commercially as an ingredient for breadmaking, respectively. Physical and chemical characteristics of the emulsion were: H<sub>2</sub>O, 38.6%; mp of fat, 36.1°C; saponification value of fat, 184.3; I value of fat, 71.5; and butyric acid value, 0. SAC

10 P 1566

[Possibilities of sterilizing dried milk and other food with ethylene oxide.]

Cerutti, G.; Cicatori, M. A.

*Lette* 46 (4) 253-255 (1972) [39 ref. It] [Istituto

di Industrie Agrarie, Univ. di Milano, Italy]

The toxicity, testing and use of ethylene oxide inhibit bacteria and fungi in foods, including wine, bread and dried foods, are reviewed. Its use is considered to be safer in dried foods than in moist foods, and the possibility of their use in dried milk to be used in food manufacture and for animal feeding is discussed. JMD

10 R 525

[Toxicity of a turban-shell in the Pacific.]

Hashimoto, Y.; Konosu, S.; Shibota, M.; Watanabe, K.

*Bulletin of the Japanese Society of Scientific Fisheries [Nihon Suisan Gakkai-shi]* 36 (11) 1161-1171 (1970) [10 ref. En, ja] [Lab. of Marine Biochem., Fac. of Agric., Univ. of Tokyo, Japan]

Human intoxications following ingestion of silvery-mouthed turban-shell, Turbo (Marmorostoma) argyrostoma are described. The symptoms of poisoning bear some resemblance to typical ciguatera poisoning, but are apparently distinguished from it. Toxicity tests on mice with water- and fat-soluble fractions from turban-shell specimens collected from various islands in the Pacific revealed that the mid-gut gland and gut contents are toxic, while the muscle is non-toxic. The water-soluble fraction was partially purified and found to be non-dialysable, extractable with butanol, precipitable with acetone, and haemolytic. AS

10 S 1285

[Problems of utilization of nitrates and nitrites in the technology of meat products.]

Cidoncha, F. S.

*Alimentaria* 8 (40) 3, 5-7, 9-11, 13-14 & 16-19 (1971) [33 ref. Es]

This extensive review covers: the advantages and disadvantages of the use of nitrates in the processing of meat products, the fundamental biochemistry involved, toxicological aspects, legal controls existing in various countries, and analytical techniques available. A preferred technique is described in detail and the results obtained in the examination of 100 samples of various meat products on sale in Spain are reported and discussed. Nitrites were present in 31 samples, with a max of 131 ppm. ECA

10 T 532

[Official inspection of coal-tar dyes in 1969. III. Analysis of Cr, Zn, Fe and Pb contaminants in food coal-tar dyes and their aluminium lakes by atomic absorption spectrophotometry.]

Tonogai, Y.; Nomura, Y.

*Bulletin of the National Institute of Hygienic Sciences [Eisei Shikenjo Hokoku]* 88: 139-143 (1970) [13 ref. Ja, en]

The application of atomic absorption spectrophotometry gave precise results in the quantitative determination of heavy metal

contaminants in coal-tar food dyes and their Al, Cr, Zn, Fe and Pb could be readily determined in the same sample after digestion with  $\text{SO}_4$  and  $\text{HNO}_3$ . The results were more accurate and reproducible than those obtained with standard Japanese method. AS

T 544

**Toxicity of food-grade amaranth dye.]**

Tea, V.; Preda, N.; Popa, L.; Sendrea, D. *Acta Vet. 20* (6) 331-336 (1971) [34 ref. Ro, fr, de, ru] [Lab. de Toxicologie, Inst. de Med. si Farmacie, Cluj, Roumania]

Investigations on rats confirmed earlier findings that amaranth administered in high doses over a long period of time lowers the vitamin A content of liver and produces vacuolar dystrophy and even degeneration of the liver cell. Amaranth is considered more toxic than tetrazine, and doubts as to the advisability of using it as a food dye, even within existing limitations, are raised. AS

A 480

**Nitrates, nitrites, and nitrosamines.**

Wolf, I. A.; Wasserman, A. E. *Science* 177 (4043) 15-19 (1972) [60 ref. En] [Western Regional Res. Lab., Eastern Marketing & Res. Div., Agric. Res. Service, USDA, Philadelphia, Pennsylvania 19118, USA]

The sources of nitrates in foods, toxicity of nitrates and nitrites, and their use in curing meat and fish are reviewed. The reaction of nitrite with amines to form nitrosamines is discussed. It is concluded that more research into the problem of nitrosamines in foods is required and that action in modifying present procedures should be approached cautiously. JN

A 503

**Effect of radiation on food colours. II. Effect of radiation on natural food colours.]**

Nada, T.; Kato, N. *Food Irradiation /Shokuhin-Shosa/* 4 (1) 137-142 (1969) [Ja, en] [Div. of Sanitary Eng., Radiation Centre of Osaka Prefecture, Japan] Decoloration by gamma rays of aqueous solutions of potassium copper chlorophyllin, zinc copper chlorophyllin, potassium iron chlorophyllin, sodium iron chlorophyllin, riboflavin, thineal and of an olive oil solution of  $\beta$ -carotene was observed.  $\beta$ -Carotene in olive oil was most radioresistant and sodium copper chlorophyllin in water most radiosensitive. In general, natural food colours were more radioresistant than coal-tar food colours. Changes in colour of  $\beta$ -carotene and thineal occurred with increases in irradiation dose. Acute toxicity of irradiated natural food colours was tested. An irradiated aqueous solution of potassium copper chlorophyllin was found to be toxic to Japanese goldfish; an unirradiated control was not toxic. AS

11 T 584

**[Effect of some antioxidants, dyes and artificial sweeteners on metabolic processes of animal cells in vitro. I. Effect of synthetic antioxidants used as food additives.]**

Kugaczewska, M.; Krauze, S.

*Roczniki Państwowego Zakładu Higieny* 23 (1) 107-116 (1972) [98 ref. Pl, ru, en] [Inst. Biofarmacji, Akad. Med., Warsaw, Poland]

To study the potential toxicity of some synthetic antioxidants used as food additives (none are at present permitted in Poland) their effect was studied on in vitro oxidation of endogenous substrates by rat liver and kidney. NDGA, BHT, BHA and propyl gallate were tested. Propyl gallate inhibited oxidation of endogenous substrates; the other antioxidants had no such effect. SKK

11 T 585

**[Effect of some antioxidants, dyes and artificial sweeteners on metabolic processes of animal cells in vitro. II. Effect of dyes and artificial sweeteners.]**

Kugaczewska, M. M.; Krauze, S.

*Roczniki Państwowego Zakładu Higieny* 23 (2) 165-171 (1972) [10 ref. Pl, ru, en]

The food dyes azorubin, Orange Yellow S, indigo carmine, Brilliant Black BN, New Coccine, amaranth, Acid Yellow, tartrazine, and Sudan G were tested as described in the preceding abstr. Only the 1st 3 did not influence endogenous oxidation processes. Of the sweeteners investigated, saccharin inhibited, and dulcin and potassium cyclamate stimulated,  $\text{O}_2$  uptake. SKK

11 T 605

**[Lipid metabolism in sodium cyclamate and sodium glutamate fed rats.]**

Yu, K. W.

1563dc 7 (2) 705-711 (1970) [35 ref. Ko, en] [School of Public Health, Seoul Nat. Univ., Korea]

Effect of sodium cyclamate, and sodium glutamate on lipid metabolism was investigated. The animals were divided into 5 groups including 2 sodium cyclamate (one fed 1500 mg/kg/day and the other 300 mg/kg/day), 2 sodium glutamate (one fed 6 g/kg/day and the other 3 g/kg/day) and one control group. Total serum cholesterol, phospholipid and triglyceride contents were generally higher in the sodium cyclamate-fed rats particularly those fed high levels, than in the control group. Total serum cholesterol and triglyceride contents of rats fed high levels of sodium glutamate were higher than in the control, but unchanged in those fed low levels of sodium glutamate. Triglyceride content of the liver of sodium cyclamate-fed rats was higher than in the control, and the increase was significant at the high level. KoSFoST

11 T 614

[Comparative toxicological-hygienic investigation of preparations containing glucoamylase.]  
 Ivanitskii, A. M.; Vissarionova, V. Ya.; Skirk, B. K.; Kuzechkin, A. N.; Bogoroditskaya, V. P.  
*Voprosy Pitaniya* 31 (3) 81-86 (1972) [13 ref.  
 Ru. en] [Inst. Pitaniya AMN SSSR, Moscow,  
 USSR]

Preparations of (i) glucavamorin G10kh (from *Aspergillus awamori* 224-21), (ii) glucorhizopin P10kh (from *Rhizopus* sp.) and (iii) glucavamorin P10kh (from *Aspergillus awamori* 78-2) of similar glucoamylase activity and intended for use in the baking industry at 0.003% of flour wt. (to speed up dough ripening and increase loaf vol.) and in the starch industry at 0.5-0.8% of starch wt. (in preparation of glucose syrup, glucose and other starch derivatives) were examined by microbiological, chemical and toxicological (rat tests) methods. Bacterial contents/g of (i)-(iii) respectively were,  $1 \times 10^2$ ,  $3 \times 10^5$  and  $3 \times 10^5$ ; mould contents were 0, 0 and 0; (i) contained much less fluorescing substances than (ii) and (iii); it proved innocuous in acute and chronic rat tests whereas both (ii) and (iii) caused some pathological changes, which are ascribed to the presence of toxic metabolites of the microfungi used in their production. It is concluded that (ii) and (iii) cannot be recommended for food industry use. SKK

11 T 626

**Nitrites in trouble.**

Anon.

*Nature (London)* 239 (5367) 63-64 (1972) [En]

The present concern in the USA about nitrites as food additives is briefly discussed. JN

12 T 688

**Current saccharin actions place added stress on need for a non-nutritive sweetener.**

Beck, K.

*Food Product Development* 6 (2) 34 & 36-37 (1972) [En]

Current investigations by medical and food toxicology specialists into the toxicity and long range genetic effects of saccharin are briefly mentioned. The following new non-nutritive sweeteners are considered: mirlin from miracle fruit, dihydrochalcones, dipeptides, and monellin from *Dioscoreophyllum cumminsii*. VJG

12 T 689

**Saccharin: future uncertain.**

Anon.

*Science* 177 (4053) 971 (1972) [En]

Studies on the toxicology of saccharin being made by the Wisconsin Alumni Research Foundation, and FDA laboratories are mentioned. The results are to be reviewed by the National Academy of Sciences. The possibility of saccharin being banned by the FDA is discussed briefly. JN

12 U 771

Tricyclohexyltin hydroxide; tolerances for residues.  
 Anon.  
*Federal Register* 37 (162, Aug. 19) 16 803 (1972) [En] [Environment Protection Agency, Washington, DC, USA]

Tolerances are established under the US Federal Food, Drug and Cosmetic Act for combined residues of the title insecticide (i) and its organotin metabolites (calculated as (i)) as follows: 2 ppm in or on apples and pears; 0.2 in meat, fat, and meat by-products of cattle; and 0.05 (negligible residue) in milk fat. CAS

12 U 772

Dipropyl isocinochomeronate; tolerances for residues.

Anon.

*Federal Register* 37 (164, Aug. 23) 16 937-16 938 (1972) [En] [Environment Protection Agency, Washington, DC, USA]

Tolerances are established under the US Federal Food, Drug and Cosmetic Act for negligible residues of the title insecticide resulting from dermal application as follows: 0.1 ppm in meat, fat, and meat by-products of cattle, goats, pigs, horses, and sheep; 0.004 in milk. CAS

12 U 784

The evaluation of the GRAS list - industries viewpoint.

Krum, J. K.

*Quarterly Bulletin of the Association of Food and Drug Officials of the United States* 36 (2) 93-101 (1972) [En] [R. T. French Co., Rochester, New York, USA]

The meaning of the words 'food additive' and 'safety' are defined and discussed. Some of the problems which may arise from the proposed GRAS criteria regulations are considered. VJG

12 U 803

Food packaging safety legislation: the Common Market.

Katan, L. L.

*Food Manufacture* 47 (9) 47-48 & 51 (1972) [12 ref. En]

In connection with UK entry into EEC, problems of EEC legislation are outlined, with special reference to assessment of hazards connected with migration of packaging additives into foods, the legislative situation existing in present EEC countries, the intra-Market communication system, and problems of harmonized EEC food legislation. HBr





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